



Sustainable Fort Lewis: A Part of the Solution



Or....”The fable of your breakfast table”



**“Now, consider
a breakfast of
bacon and
eggs....**

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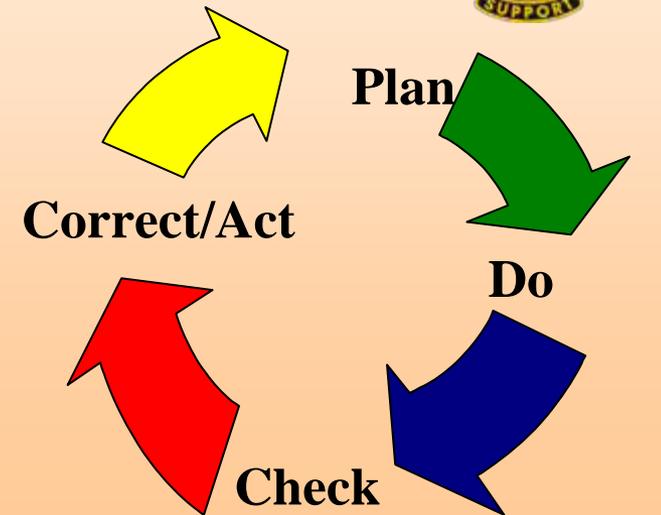
21 April 2008



What is ISO 14001?



- **Part of the ISO 14000 series**
- **Closely aligned with ISO 9001 (quality management)**
- **A documented approach to organize, plan, implement and integrate environmental performance**
- **Emphasizes environmental stewardship, compliance and pollution prevention programs**



- I. Environmental Policy Statement**
- II. Planning**
- III. Implementation/ Operation**
- IV. Checking/ Corrective Action**
- V. Management Review**



Why ISO 14001 & Sustainability?



Because one mistake wipes out a decade of good work.

“I am convinced that the military ought to organize and run a nationwide environmental clean up and education program, maybe **with the guys at Fort Lewis in command**”

“Fort Lewis could leave a large footprint on the environment in Western Washington; instead, **the Fort is a model for how to protect the environment**”

Fort Lewis Gasses Spanaway: Schools Evacuated

Tacoma News Tribune

(FORT LEWIS IS) an **Environmental Oasis amid the urban sprawl**”

“The Fort Lewis Military Reservation contains **some of the most significant natural areas** in the state of Washington”

Tacoma news Tribune

Curt Soper, Nature Conservancy of Washington

“There are trees in there. Five hundred year old trees. May be a thousand. Nobody bothers them. Fort Lewis, the Army, protects them. You have to understand their mission. **The Army's mission is to train troops, not to cut trees..**”

Billy Franks, Nisqually Indian and Chairman of the Northwest Indian Fisheries Commission

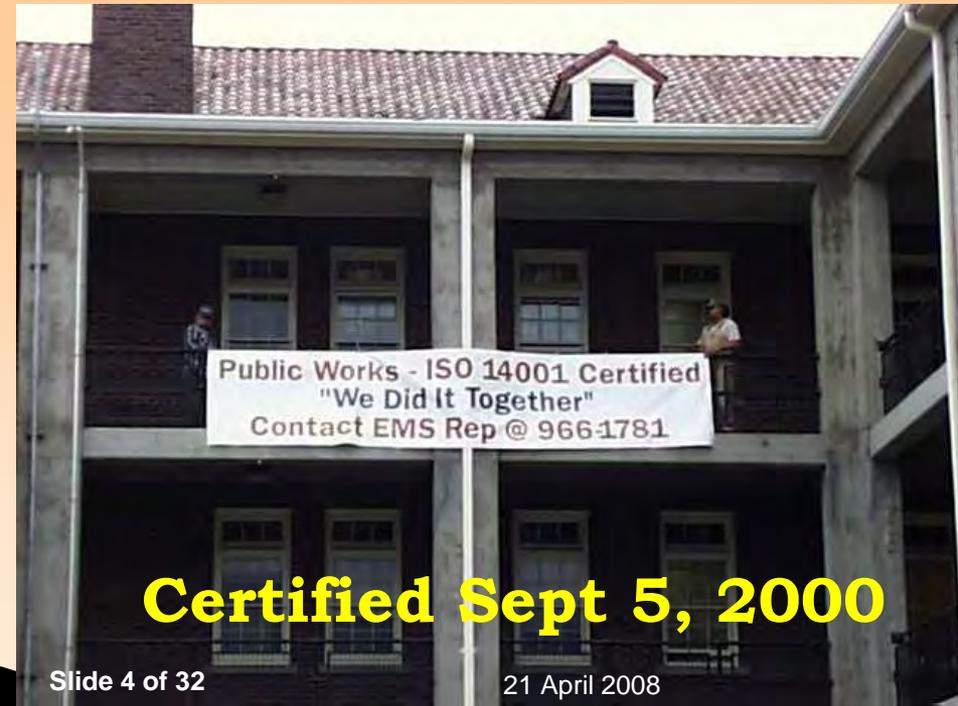


Ft. Lewis Public Works



ISO 14001 EMS –Lessons Learned

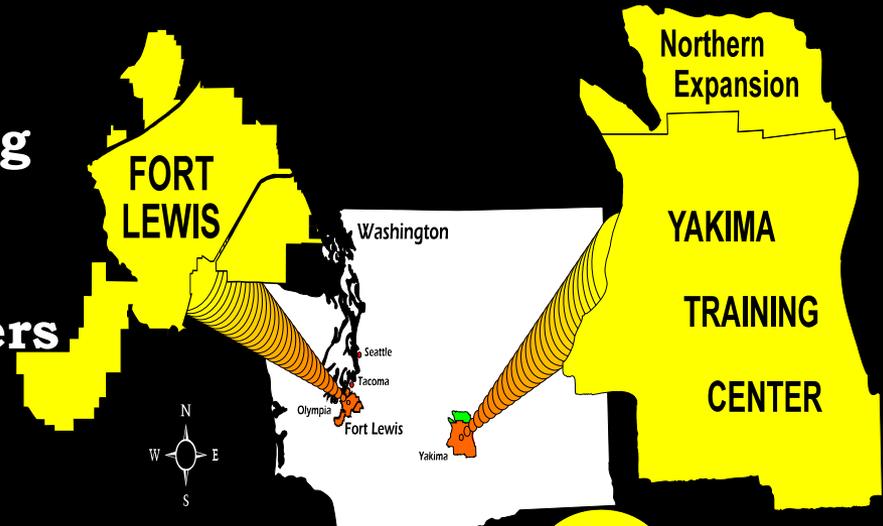
- **Gap Analysis: 73% compliant to standard**
- **Say what you do, do what you say**
- **Ownership and Empowerment**
- **Environmental Compliance**
- **Provides rigor (Control, Tracking & Integrated Standardization)**
- **Changing the culture**



Certified Sept 5, 2000

What does Sustainability have to do with Fort Lewis?

- **Facilities - 22 million square feet**
- **Industry – maintenance & training**
- **Major utilities**
- **Hospital (MAMC)**
- **Housing - family and single soldiers**
- **Goods and services**



Ft. Lewis - 86, 176 Acres
Yakima - 323,651 Acres



- **Because compliance just isn't good enough anymore!**
 - **The most pollution the law will allow**
- **“Sustainability is a leader's program.”**
 - **Difference between leadership and management**
 - **Both are needed**

Intended Consequences – Meet Human Needs

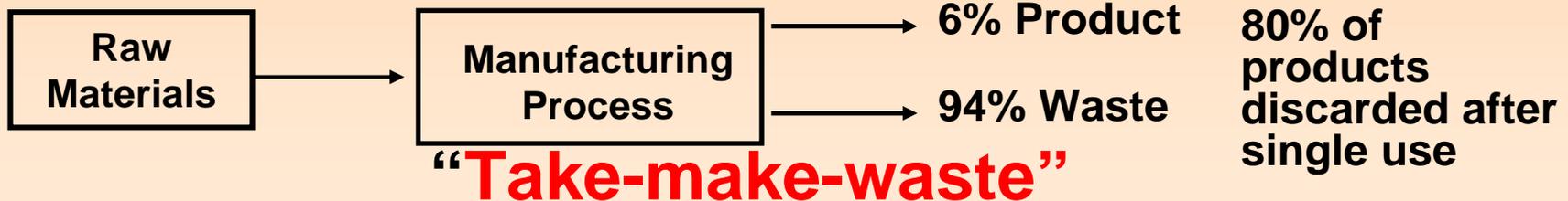


- Prosperity
- High Quality of Life
- Strong economy
- Incredible array of goods and services



A Very Poor Engineering Model

Linear Industrial Processes



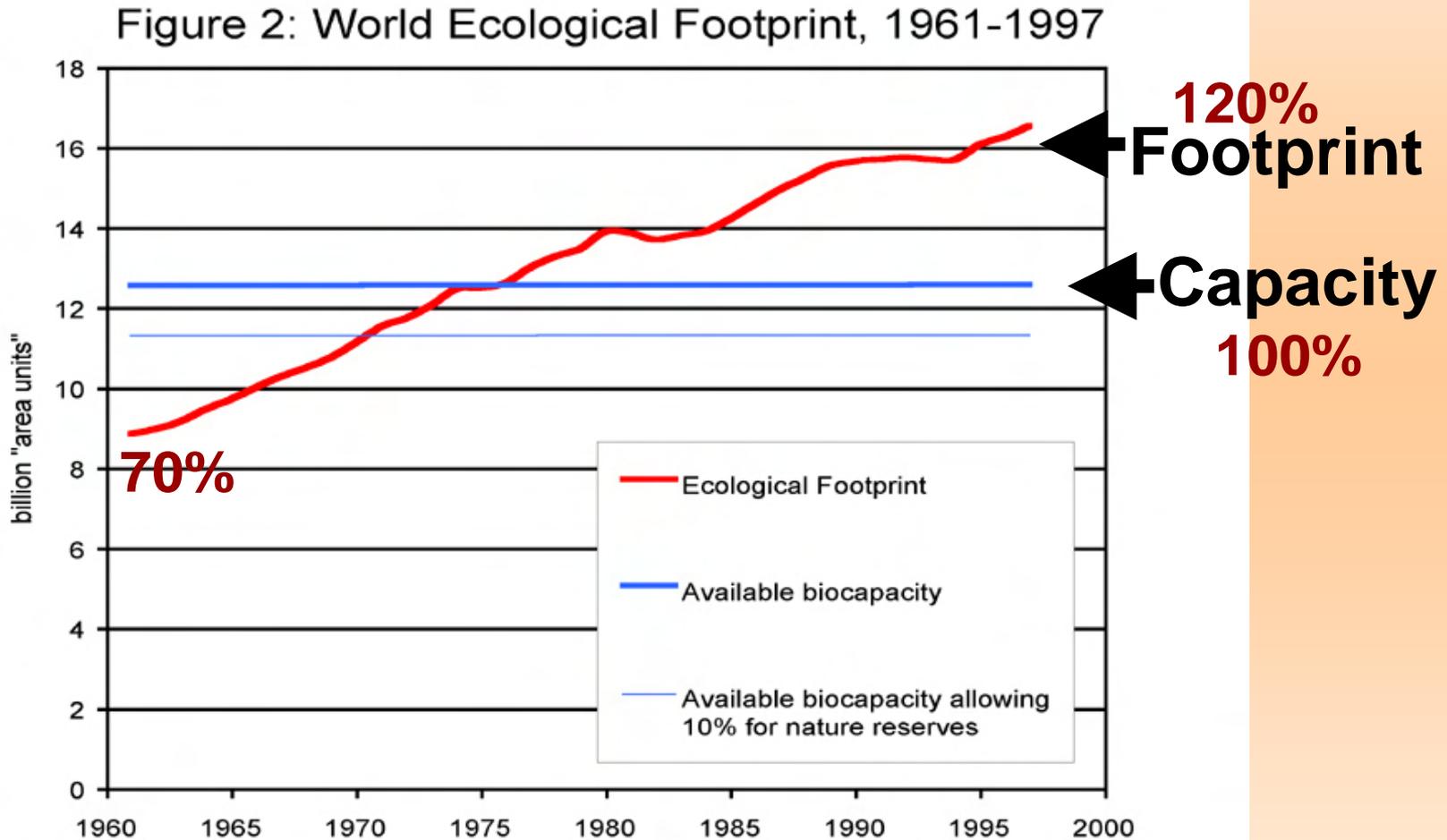
Unintended Consequences – a crashing biosphere and disenfranchised people

“Only once in the history of this planet -- now -- have total flows and movement of materials by one species matched or exceeded natural planetary flows.”



World Ecological Footprint

Hectares



Time

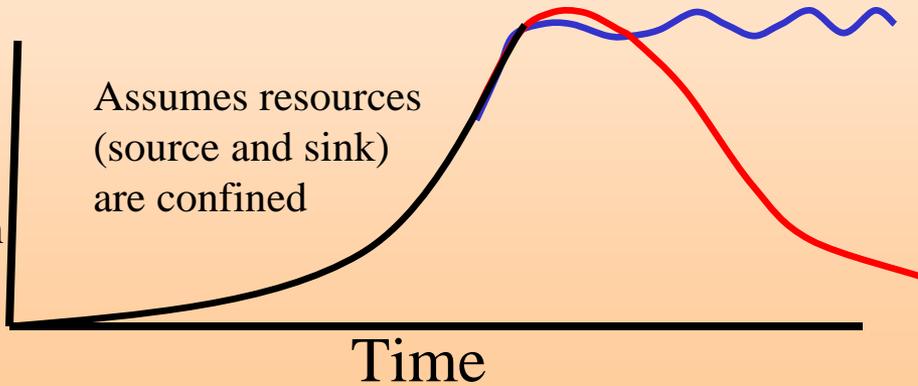


Sustainability Science

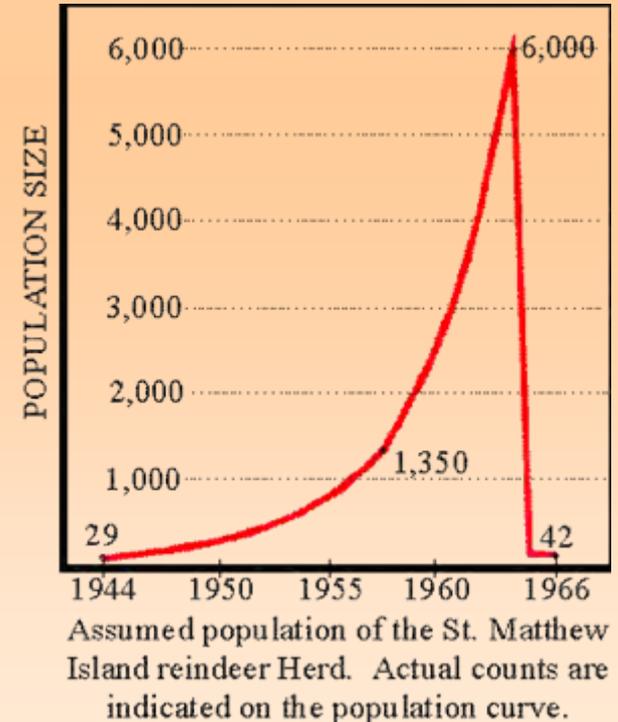
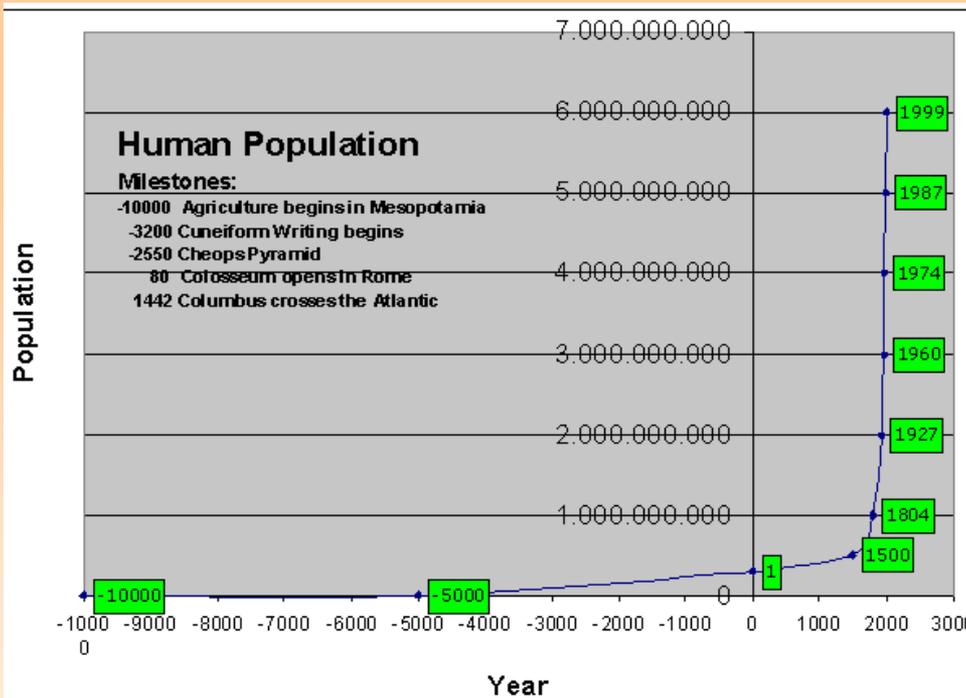


Health of the population

Assumes resources (source and sink) are confined



Reindeer

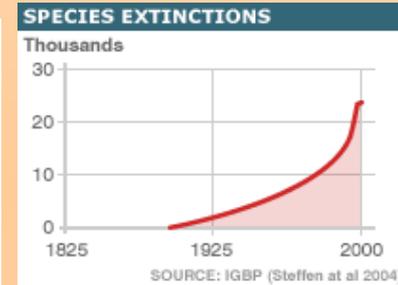
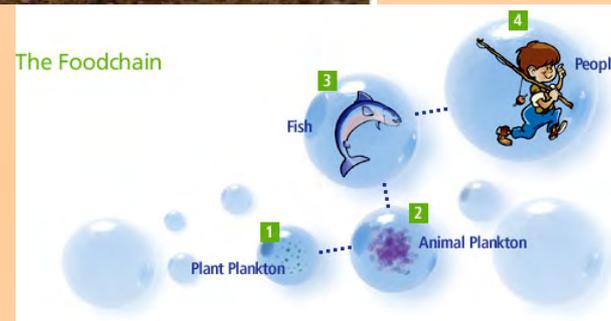
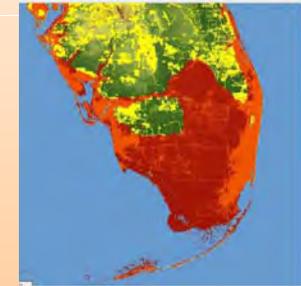




Planetary impacts and consequences



- **Melting Ice**
- **Rising sea levels and desalination**
- **Water Depletion**
- **Habitat destruction/ Species extinction 1000 times background**
- **Phytoplankton loss**
- **Pollinator declined**
- **New disease vectors**
- **Fossil Fuel Scarcity**



Potential consequences of inaction include: global starvation, flooding and drought driven mass migration, armed conflicts, and economic collapse.



What is “Sustainability”?



Term describing a state of community growth and development where:

- **Present requirements are met without compromising ability of future generations to meet their own needs**



Common key points

- **Systems approach**
- **Feedback loops**
- **A System of systems**
- **Economy, Equality, Ecology - the “triple bottom line”**
- **Solution oriented**
- **Urgency, hope and a “can do” attitude**
- **We’re all in it together**



WHY? -- Because it's not about saving the planet!



“The application of the golden rule



from generation to generation.”



Army Strategy



Foster a Sustainability Ethic

Meet Test, Training and Mission Requirements

Strengthen Army Operations



Minimize Impacts and Total Costs

Drive Innovation Enhance Well-Being

- **Save \$ (long-term)**
- **Social Influence & Improved image**
- **Buying power**
- **Remove conflict Incentives**
- **Force multiplier**
 - Logistics tail
 - Heat, noise signatures





Fort Lewis Sustainability

25 Year Goals



- **AIR QUALITY**
 - Reduce installation source and non-tactical motor vehicle air emissions **85% by 2025**
- **ENERGY**
 - Reduce total energy consumption by **30% by 2015**
 - **Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025**
- **SUSTAINABLE COMMUNITY**
 - **Create sustainable neighborhoods for a livable Fort Lewis community that enhances the Puget Sound Region**
- **PRODUCTS AND MATERIALS**
 - Cycle all material use to achieve **ZERO new waste by 2025**
- **SUSTAINABLE TRAINING LANDS**
 - **Maintain the ability of Fort Lewis to meet it's current and future military missions without compromising the integrity of natural and cultural resources, both on the installation and regionally**
 - **Recover all listed and candidate federal species in South Puget Sound Region**
- **WATER RESOURCES**
 - **Treat all wastewaters to Class A reclaim standards by 2025 to conserve water resources and improve Puget Sound water quality**



Implementation at Fort Lewis - Integration



Installation Sustainability Program

Cross functional teams,
leadership board

From Lofty
Goals

DRIVEN BY:

- Strategic Planning
- New Army Env. Strategy
- **Good Common Sense**

ISO 14001 Environmental Management System

Operating permits,
structured processes

REQUIRED BY:

- Operational Implementation
- Executive Order 13423
- **Good Business Sense**

Into
Daily
Work



Sustainability
Management
System

- 5-year Plan with objectives
- Annual Targets each FY
- **Funded Projects**



Fort Lewis Sustainability Program (Example)



Goal: Reduce installation non-tactical air emissions 85% by 2025

5-yr Short-Term Objective – Reduce tailpipe emissions by 20%.

AIR QUALITY EMS FOCUS

Objective A1: By 30 Sep 07, reduce vehicle tailpipe emissions by 8% from previous year.

WHY!

Metric: Tons of emissions produced (used for year to year comparisons)

a. Target A1/T1: By 30 Sep 07, 36% Fleet vehicles purchased are alternate fueled
Metric: Number of fleet vehicles capable of using alternate fuels purchased expressed as a % of the total purchased.

WHAT!

b. Team

- 1. Team lead is John Doe.**
- 2. Team members are ...**

WHO!

c. Methodology

- 1. Determine number of PW alternative fueled GSA leased and PW owned vehicles. Status: Completed**
- 2. Research vehicle options. Status: Ongoing**
- 3. Etc.**

HOW!

d. Schedule/Milestones

- 1. Develop Checklist by (date)**
- 2. Prepare a Standard Operating Procedure by (date)**
- 3. Etc.**

WHEN!

e. Resources: The major resources required for this target is (time, labor, money)



Air Quality/Energy Teams



**Conserving energy and reducing air emissions...
... moving away from petroleum-based fuels and
using renewable energy sources...**



NEV and Charging Station

- **GSA vehicle fleet 47% Alt fuel capable**
- **Alternate Fueling Stations**
- **24 Neighborhood Electric Vehicles (NEV)**
- **Rideshare program**
- **Conserve**
 - LED traffic lights, heat pumps
 - Bldg envelopes
- **Commission Renewable Energy Study**
- **Green power purchases**
 - 21% (FY07 –FY10) from renewable sources
- **Innovative energy systems**
 - Solar wall
 - Energy from decomposition of waste





Hydrogen Demonstration Project



- **DLA project**
- **\$2-4M FY08**
- **Formulates Hydrogen from WWTP digester**
- **Converts forklifts to Hydrogen fuel cell**
- **Hydrogen fuel cell shuttle bus**
- **Mobile refueler**





New Construction ~ Minimal Impact on the Environment



Heat Recovery from Dryer Vents



Covered Bike Racks and Recycling Station



Native Landscaping – drought tolerant



Recyclable Carpet Tile

- **Direct Digital Controls- remote control for energy savings**
- **Finished concrete flooring**
- **Compact fluorescent lights**
- **Zero VOC paints and adhesives**
- **20% of materials manufactured locally**



Energy Star Horizontal Axis Washers



Underground Water Cistern



Plastic Lumber Picnic Tables



Permeable wash pad



Sustainable Communities Team



Create sustainable neighborhoods for a livable Fort Lewis community that enhances the Puget Sound Region

Broadens focus from individual buildings to overall sustainable neighborhood / community issues.



Building

American Institute of Architects 10 Principles for Sustainable Communities

1. Design on a Human Scale
2. Provide Choices
3. Encourage Mixed-Use Development
4. Preserve Urban Centers
5. Vary Transportation Options
6. Build Vibrant Public Spaces
7. Create a Neighborhood Identity
8. Protect Environmental Resources
9. Conserve Landscapes
10. Design [Excellence] Matters



Neighborhood



Installation



Region



Sustainable Practices



SUSTAINABLE FORESTRY...

**Forest Stewardship Council
Certified Forest**



**Fort Lewis from Rainier
Fire Tower ~ 1950**



**Fort Lewis from Rainier
Fire Tower ~ 2000**



Achieve Zero Net Waste

~ From Cradle to Cradle



Green Procurement

- Office Supplies to Furnishings
- Sustainable Interiors Showroom
 - Long term/ lifetime warranty
 - recycled content/ recyclable



Deconstruction

- Contract Incentives
- 100% Recovery





ZERO Net Waste



Composting and Wood Waste Recycling

**Making
Compost**



Compost Ready For Use

**Annual cost savings
from composting
is \$416,000**

- Cost avoidance for disposal of the organic waste
- Procurement savings of 4000 tons of new topsoil mix

**Waste Wood From
Demolition and grinding**



Reuse of Aggregate Material



**Asphalt pile from
airfield runway
renovation**



**Same asphalt – new life
stabilizing a tank trail**

**Annual cost savings
from recycled
concrete/asphalt is
\$340,000**

- Disposal cost avoidance
- New purchase cost avoidance



Fostering a Sustainable Culture



What did you do at work today, daddy?



- Education (video)
- Web site
- Branding
 - Part of the solution...
 - Logo (window clings)
 - Signs



- Signing a commitment statement.

“I commit to making a sustainable Fort Lewis, Army, and planet a priority in my life.”

- (Signed) COL I.M. Onboard



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WHAT CAN I DO?
BE PART OF THE SOLUTION

NEWS & EVENTS
SUCCESS STORIES



For Kids

["I Can Help
pledge to be more
sustainable"](#)

[Detective Games](#)

[Links](#)

Hot Topics

[Report Illegal
Dumping](#)

[Quick Reference
Guide
HAZMAT Solid Waste
Recycling](#)



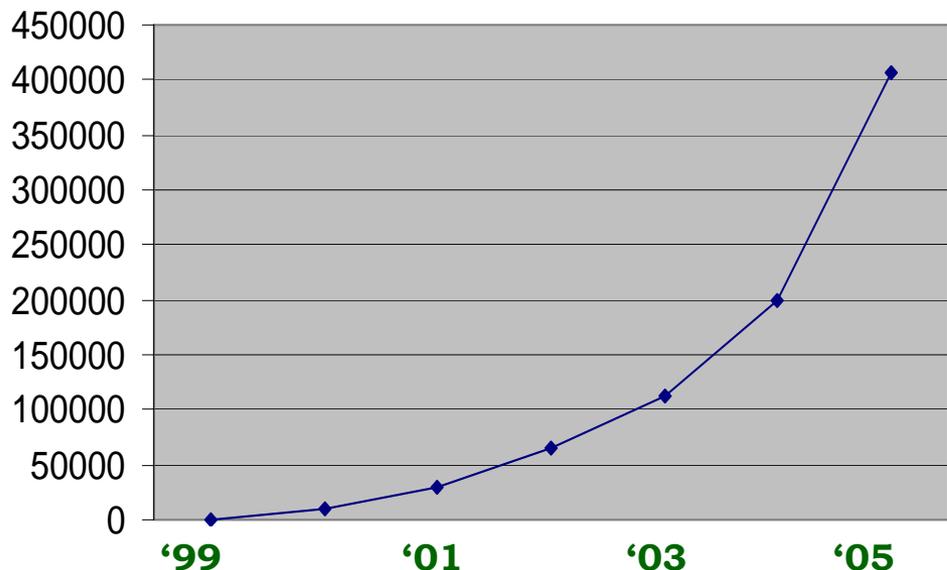
Being a part of the solution



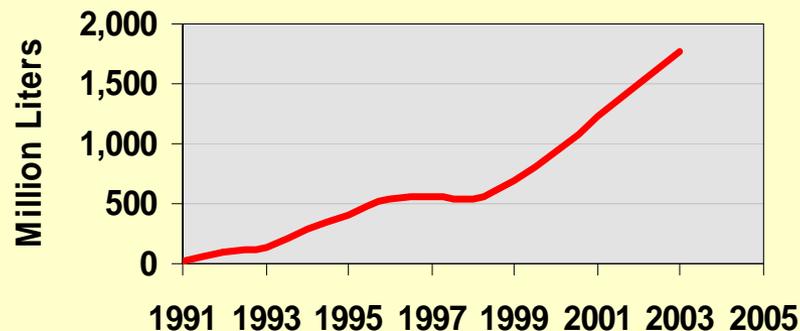
“Little Things Can Make a Big Difference”

- Malcolm Gladwell, *The Tipping Point*

Cumulative Hybrid Auto sales 1999 to 2005



World Biodiesel Production, 1991-2003



Source: IEA

Change using exponential growth starts with the power of one



Going beyond compliance



A few select laws/reggs/orders...

- Energy Policy Act
- Energy Ind. Act (WA)
- Executive Order 13423
- Clean Air Act
- Endangered Species Act
- Clean Water Act
- HB 2738,1303, & SB-6001 (WA)
- RCRA & RCW 70.95.010

the criteria...

the Ft. Lewis goal,

& progress to date.

- | | | |
|---------------------------------------|------------------------------------|---|
| • 15% renewable by 2020 | • 100% renewable by 2025 | • 21% renewable & solar/wind gen. study |
| • 2% biodiesel & ethanol by 2008 | • 100% by 2025 | • 83% biodiesel (B20) & 14% ethanol (E85) |
| • Critical Habitat for listed species | • Recover all listed and candidate | • ACUB & CCA for species of concern |
| • 50% waste diversion rate | • Zero net waste | • 72% of “waste” stream is reused or recycled |
| • NPDES permit discharge stds. | • Class A reclaim stds. | • Pretreatment program/reuse study/pilot |



Summary of Progress to date



A few select examples:

EPA Performance Track membership

Eliminate Title V Air Operating Permit

Eliminate RCRA TSDF Permit

Material reuse/composting facility

Wetlands construction for stormwater treatment

Model Motor Pool

The (triple) Bottom Line:

Community

- **30+** positive media reports pr year
- **14** community awards received past 4 yrs
- **35** local relationships built
- **4** community events per yr

- **0 NOVs** last 4 years

Environment

- **2364 acres** decontaminated
- **23,000 tons** of waste reused
- **40,000 MBTU** saved/generated
- **3,400 acres** habitat improved on & off post apiece

Financial

- **\$1.1M** saved or made (onetime net)
- **\$886,000** saved or made (annual net)



The Little Blue Engine

by Shel Silverstein (1932-1999)





Fort Lewis Alternate Fueling Facility (AFF) Project



Congressional MCA “earmark” for FY08

• Project Fun Facts ~

- Have \$2.9 M to build a \$6.6M facility.
- Originally planned for FY12, but now must execute in FY08/09.
- Every potential location has serious flaws.
 - * traffic congestion, right-of-way, access, annexation, utilities access, sloped terrain, visibility, etc.)
- Potential conflicts with AAFES Fuel sales
- No partner to act as operator identified

• **In Essence: underfunded, overbudget, behind schedule, and scantily scoped.**

Just your standard “Jo-Jo the dog-faced boy” project



Will we succeed?



- **I don't know**
- **I know I won't quit**
- **Edison**
- **Cannot be afraid to fail. (might lose a battle...)**
- **Parenthood**
- **NGUNNGU**



The Little Blue Engine:

The Rest of the Story



“Argue for your limitations, and sure enough, they are yours”

-Richard Bach